

Nutrients That the Human Body Needs in Large Quantities

<http://healthyeating.sfgate.com/nutrients-human-body-needs-large-quantities-5743.html>

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The nutrients you need in large quantities are those that provide energy to support your body's health and to maintain optimal functioning. These nutrients, called macronutrients, include carbohydrates, proteins and fats. They all deliver energy in the form of calories, but each serves a distinct vital role.

CARBOHYDRATES

Two of the three carbohydrates -- sugars and starches -- serve as the body's preferred source of energy. During digestion, they're broken down into glucose, which is quickly converted into energy that can be used by every cell. Some glucose is stored in the liver and muscles so that you have energy ready whenever it's needed. Excess glucose is converted into fatty acids and stored as fat. One significant difference between the two is that sugar provides energy without nutrients, but starches, or complex carbohydrates, deliver energy plus vitamins, minerals and fiber. Fiber is the third type of carbohydrate, but it is not digested. Insoluble fiber adds bulk that keeps food moving through the digestive system, and soluble fiber helps lower cholesterol and keeps blood sugar balanced.

PROTEINS

Proteins consist of long chains of amino acids. When you eat proteins, they're digested into the individual amino acids, which your body then uses to build the specific proteins it needs. Amino acids aren't stored in the body, which means that it's essential to get a regular supply from your daily diet. Every part of your body needs protein because it's responsible for the structure, growth, repair and function of cells, tissues and organs. Just one example: you can't maintain lean muscle mass without protein. Hemoglobin, antibodies, enzymes and some hormones are all made from proteins.

FATS

Fats provide and store energy in our body. This is their main function.

In spite of their bad reputation, fats are an essential part of your diet because they ensure normal growth and development. Fats form the structure that supports cell membranes, cushion your organs and help produce hormones. Vitamins A, E, D and K can't be properly absorbed unless fats are present. Saturated fats and cholesterol are "bad" fats because they contribute to heart disease. Trans fats, which are identified as hydrogenated vegetable oils, should also be avoided because they raise cholesterol. The best way to add fats to your diet is by consuming healthy unsaturated fats –monounsaturated and polyunsaturated– which actually lower cholesterol and help prevent inflammation.

The function of food and the 3 basic food groups

http://www.angelfire.com/bug/nutrition/Function_of_food.htm

http://www.answers.com/Q/What_is_the_3_basic_food_groups

That's why we divide the food wheel into three main groups: **energy-providers** food, **body-builders** groups and **body-regulating** food.

ENERGY-PROVIDERS GROUPS **give** our body **energy**.

Food supplies the fuel or energy needed to perform the many tasks of everyday living. We need energy to think, breathe, walk, sit, speak and even sleep. We get energy from **carbohydrates** and **fats**. It is important that we eat enough food to supply all our needs. If we don't, we will feel tired and listless. Having no energy can be compared to a car that has run out of petrol. On the other hand, if we eat more energy food than our body needs, this energy will be stored in the body as fat. Too much stored energy will result in the body becoming overweight or obese.

Foods rich in fats such as nuts, oil, lard, and butter; carbohydrates and starchy foods such as rice, corn, bread, oatmeal, macaroni, noodles, potatoes, and others. Food rich in sugar are cakes, candy, honey, jam, jellies and ice cream.

BODY-BUILDERS GROUPS **repair and build** our body cells and tissues.

Food provides the materials needed to build, repair and maintain body tissues. **Proteins (for bones, muscles, cartilage and other tissues)**, fats (for cell membranes), and minerals (for bones) are the best nutrients for growth. Growing bodies need extra amounts of these nutrients. Every person whether growing or not, is going through a continual repair process of replacing injured or dead cells. It is food that supplies the nutrients necessary for this process. Food rich in protein are poultry foods, meat, meat products, eggs,, fish, shrimps, crabs, gelatin, pulses and dairy products.

BODY-REGULATING GROUPS **regulates and protects** our body.

Food supplies the substances that help regulate the body's processes. **Water, vitamins and minerals** help regulate breathing, the nervous system,

digestion, blood circulation and the elimination of waste products from the body. They help keep all the systems in the body working properly.

Groups **5** and **6** are especially rich in vitamins and minerals (in addition to dietary fiber)

Minerals rich foods are also milk, cheese, fish, shellfish, such as oyster and shrimp, mussels, clams, seaweeds, lobster, anchovies, sprouts, soybeans, soy milk, peanuts, onions, animal liver, egg yolk, banana, apple, orange, corn, rice, green peas, beans, lettuce and spinach. Vitamin rich foods are green leafy vegetables, yellow fruits and vegetables, such as tomato, carrot, aubergine etc.

Proteins, carbohydrates and fats must be eaten in large quantities (measured in grams), whereas minerals and vitamins must be taken in small quantities (measured in micrograms or milligrams)

GUIDELINES FOR A HEALTHY DIET

1. HAVE FIVE MEALS A DAY:
 - a. A complete breakfast including fruit, milk and cereals (cornflakes, toasted bread, muffins...)
 - b. Something for break time
 - c. A lunch at the end of class time
 - d. An afternoon snack
 - e. A not very abundant dinner.
2. EAT ENOUGH KILOCALORIES (Energy supply). It depends on:
 - a. Your weight
 - b. Your height
 - c. Your gender (male or female)
 - d. Your age
 - e. Your daily activity

But we could say that the average energy intake should be about 2000 kcal

This energy must come mostly from carbohydrates (65%), fats (20%) and proteins (no more than 15%)

3. EAT AN ADEQUATE AMOUNT OF PROTEINS, no more than 0.8 g of protein a day per kilogram of body weight. For example, if your weight is 65 kg you shouldn't have more than 52 g of protein a day.
4. DIVERSIFY THE ORIGIN OF YOUR PROTEINS: Meat is neither the only source of proteins nor the most important one. You should choose more proteins of vegetal origin, especially in pulses; and also choose fish more often than meat as an animal source of proteins. Remember also milk and dairy as an important source of proteins. You must consume at least half a liter of milk a day (or its dairy equivalent) in order to obtain your daily dose of calcium.
5. INCLUDE FIVE SERVINGS OF FRUIT AND VEGETABLES EVERY DAY because of its high vitamin content
6. EAT FOOD WHICH IS RICH IN DIETARY FIBER, not only fruit and vegetables, but also nuts, whole wheat bread, whole cereals...)
7. CHOOSE FOOD CONTAINING INSATURATED FATS, which means fish instead of meat and vegetal oils instead of animal fats. Be careful with palm oil or coconut oil and choose olive oil, sunflower oil or canola oil.

- Why cholesterol and saturated fats are bad?
- Tell some examples of substances which are proteins
- What is a macronutrient?
- Olive oil, sunflower oil, sardine and anchovy oils, and oils from nuts are healthy. What kind of fats do you think they are?
- Tell one carbohydrate which is not able to give you energy.
- What is this carbohydrate's function?